

## PROPOSAL OF AN OPERATIONS STRATEGY FORMULATION IN PT ABC

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*Abstract—ABC is a heavy-duty equipment and support equipment assembler, provides chrome plating and engineering solution. Problems in the development of the company is how to increase the production in each production line. Constraints incurred in the company due to non optimal operation performance system. This is an obstacle for the company to expand its business. That problem causes difficulties for the company in determining the long-term strategic plan. Evolving business issues will be discussed through strategic audit that is expected could achieve strategic fit. The discussion includes the current situation of the company, corporate governance, external environment, internal environment, and strategic analysis. Constraints on the performance of the operation will be solved by formulating operations strategy. Ability to carry out operations management requires performance measurement. Measurement in meeting customer needs includes productivity, efficiency, effectiveness, and health and safety workplace. Measurement is fundamental to know the capabilities. Thus the company will know the capacity and productivity of the plant. The ability to recognize this capacity will be a fundamental consideration of the company in making a development strategy decision to achieve long-term targets. Changes will occur in the basic performance records, knowledge of the exact production capacity, also in opportunities to make working methods improvement and an appropriate investment. By knowing the production capacity accurately, the coordination of each division in achieving target will be synergic. Holistic measurement of corporate performance can be started by this basic measurement.*

*Key Words: operation strategy, capacity, productivity, measurement*

### 1. Introduction

Final project is a task of learning process facing the work environment, learning to use the theory in practice.

#### A. Company Profile

ABC is a heavy-duty equipment and support equipment assembler, provides chrome plating and engineering solution. ABC has a vision “Innovative engineering delivering consistent quality to achieve customer excellence and maximize stakeholder’s value and mission to promote value added engineering innovation to maximize resources, minimize waste and deliver consistent excellence, to become the preferred partner of regional and global industry players, and to provide our stakeholders with the highest return on investment in the industry”<sup>1</sup>.

#### B. Company History

ABC founded in 1991, it began as a Canadian – Indonesia partnership, specializing in surface plating engineering. ABC started to manufacture construction equipment attachments and work hand in hand with OEM manufacturers to come up with better and more efficient designs to provide optimal working results for the end users. With high satisfaction rates, ABC were then appointed as OEM manufacturer to built attachments, even for some export markets. One noteworthy accomplishment is ABC has obtained ISO 9001:2008 an international standard for quality systems and OHSAS 18001:2007 an international standard for safety and environmental preservation.

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<sup>1</sup> company portfolio, 2012

### C. Scope of Business

ABC is a provider of engineering solutions and plating. The company's launched four products which are: ChromPLATE is hard chrome plating services, ChromTACH is fabrication and recondition of heavy equipments attachment products such as attachment of excavator, wheel loader, dozer, compactor and much more, ChromTRAIL is fabrication and recondition of truck attachment, and ChromLITE is a light portable equipments that could be applied in mining, construction, road and others area.

#### D. Business Issues

Problems in the development of the company is how to increase the production in each production line. With the optimization step in which the investment is intended solely for the completion of the production problems. Constraints incurred in the company due to non optimal operation performance system. This is an obstacle for the company to expand its business. Companies can not manage what it can not measure, but the company can not measure what is not recorded.

## 2. Business Issue Exploration

Evolving business issues will be discussed detail based on combination of strategic fit<sup>2</sup> and strategic audit<sup>3</sup>. Conceptual framework that is brought in the form of analysis of the factors that influence the company's and lead to alternative strategies and recommendations.

### E. Conceptual Framework

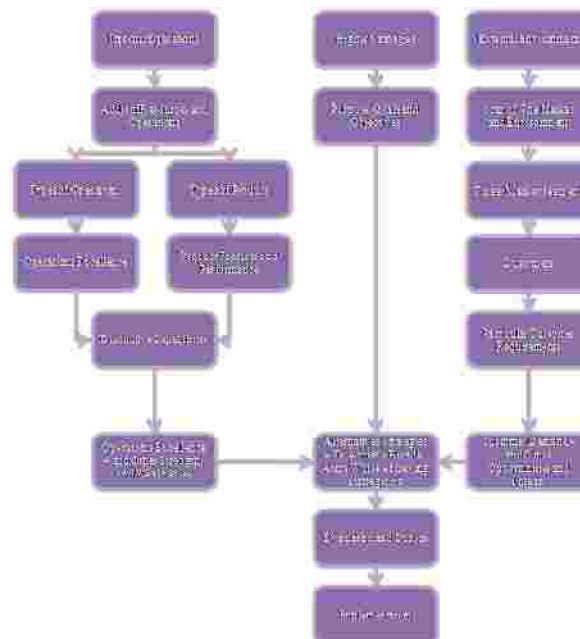


Figure 1. Workflow Diagram

Details of the evolving business issues will be discussed through strategic audit that is expected could achieve strategic fit. The strategic fit occurs when design of internal operations are in harmony with the company external environment. With emphasizing the external view of gaining a competitive advantage by supplying products that closely match customer demands. In terms of its use of resources, emphasizing the internal view of operations excellence giving distinctive capabilities. These views are not mutually exclusive, the design of operations strategies that have to achieve both of them. The company have to make products that customers want, while ensuring effective and efficient use of resources. This long term match between the internal operations and the external

<sup>2</sup> Waters, Donald, 2006, *Operations Strategy*, London: Thomson.

<sup>3</sup> Wheelen, Thomas.L. & Hunger, J.David, 2010, *Strategic Management And Business Policy: Achieving Sustainability* (12<sup>th</sup> Ed.) New Jersey: Pearson.

environment is the strategic fit<sup>4</sup>. The discussion includes the current situation of the company, corporate governance, external environment, internal environment, and strategic analysis.

#### F. Method of Data Collection and Analysis

To determine the competitiveness, observing and analyzing the external conditions will not sufficient. Analysis of the internal condition is required to determine the internal strategic factors, in determining whether the company can take the opportunities and avoid upcoming threats.

##### 1) Internal Operations

Organizational structure was formed with the aim to support the corporate strategy. At the current organizational structure has grown in order to support a growing company. BOD headed by a president director, and is divided into three departments: Operations department, sales department, and production department. Corporate culture is a commitment to quality of work and healthy work environment. Embodied in customer satisfaction through quality products, sustainable development by improving the productivity of human resources and innovation, pollution prevention and control processes in accordance with the standards and government regulations. R&D which is currently conducted by company focused on one product line that is chromelite. Development done on improving quality, developing design specifications and production processes. This R&D project shows the distinctive competency of the company's engineering expertise.

##### 2) Audit of Resources and Operations

Value chain is a chain of events that began with the creation of the raw materials from suppliers, moving towards into value addition activities that occur at the time of production, marketing the products and services, and distribute finished goods to consumers.

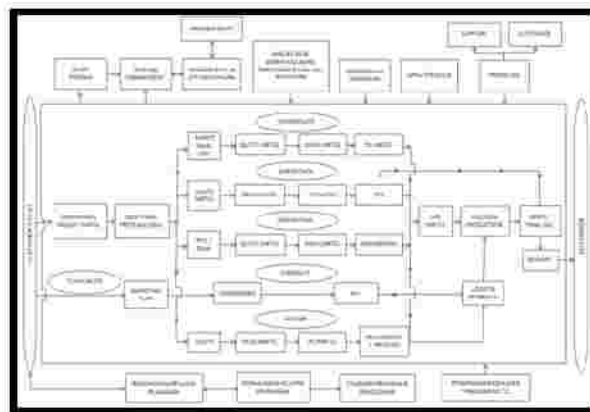


Figure 2. Business Process Mapping<sup>5</sup>

##### 3) Higher Strategy, Goals, and Objectives

Elements that must be contained in the essence of the mission statement are: consideration of the nature of business organization, the response from consideration of consumers perspective, not from the perspective of the organization it self, reflects the basic values and beliefs held by the organization, reflect elements of sustainable competitive advantage, summarizes the main reason of the approaches chosen by company. For their corporate strategy, PT ABC implements directional strategy with medium growth. In business strategy competitive strategy applied by the company are the strengthening and improvement on the ABC core competencies which are engineering, manufacturing and quality. With the increasing size of the company, human capital being reinforced and enhanced with training and the addition of qualified personnel. The company's focus on cash flow, which was stated in the focus of all divisions covering human capital, ROA, and ROE. Company policy is to do the improvement and optimization of production lines without making additional investments. Increased production through maximum utilization and optimization of human resources. Purchases of equipment aimed at resolving the bottleneck that maximize production lines.

<sup>4</sup> Waters, Do nald, 2006, *Operations Strategy*, London: Thomson.

<sup>5</sup> ABC, 2012, *Business Process Mapping*, Jakarta: Unpublished Document.

### G. Analysis of Business Situation

It is known that the basic performance of the company has not been properly measured. Performance measurement system still focused on financial measures. There are non-financial factors that are important in meeting competition. However the company has not seen this as another benchmark in performance measurement. With recording of operation performance system not yet optimal, complicate the company in taking a long-term strategy. Support of operation performance measurement system is needed as a firm grounding in creating the future direction the company, in dealing with growth and competition. Synergy which happens in the company has not been seen, where each division pursuing realization of the target respectively without considering the condition of the other divisions.

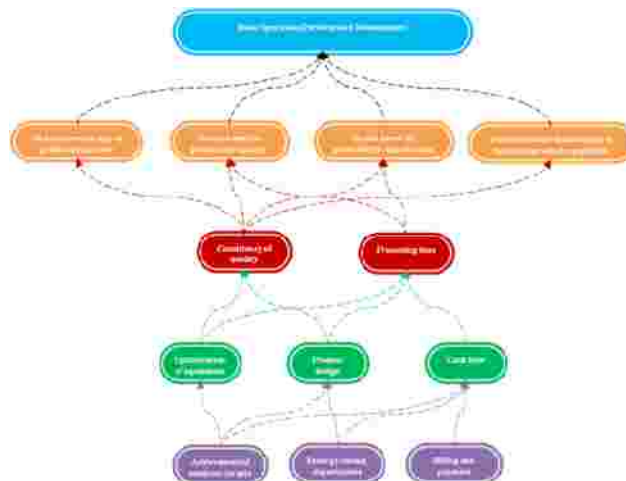


Figure 3. Current Realty Tree<sup>6</sup>

Business process stems from PO (purchase order) obtained by the sales department, then followed up by operation department with the design, goes into production and delivery to customer and then end with payment. But the implementation is not synchronized between each departments that often lead to deterioration in the quality of work and time. Seen how the synergy among departments that has not been formed, causing obstacles to the achievement of goals.

The fundamental thing which makes performance not synergic and difficult not measured due to the lack of accurate information about the condition of the production line. Ongoing operating performance hampered by the knowledge of the existing types of industries production. Companies has not been able to identify which categories of industries products will be run whether manufacturing or service industries. Conditions of production capacity and productivity of each production line has not been measured accurately, make it difficult to determine operating strategies. Optimization of production equipment to be carried are not being completed. Type of work processes which take place in the production process has not been seen as a factor for the improvement. Constraints on operations give effect to the performance of other departments. Operating performance to be the main obstacle in the development of the company's business.

### 3. Business Solution

Target achievement requires clear strategy and measurable. Failure in the implementation of strategies arise because the company has operations performance constraints. The problems addressed by considering the internal and external analysis of the company.

#### H. Alternative of Business Solution

Constraints on the performance of the operation will be completed by formulating operations strategy proposed in accordance with the conceptual framework.

<sup>6</sup> Youngman, K. J., How Do We Build a Current Realty Tree?, 2009.

### 1) *Types of Operations and Operational Excellence*

The main task in the operating strategy that is operate existing production system to produce products and services with quality specification, time and cost and to develop systems to help increase productivity. Different processes have very different operational characteristics, so it requires a totally different management. Understanding the differences in the characteristics of these processes is the first step to be able to guarantee the operational system will work effectively. Interest in the value of an operations management for customer comprised on the aspects of quality, cost, delivery time, and flexibility. Operations included into the main function of the value chain. Operation is the process of transforming inputs into outputs that have a higher economic value of using company resources. Resources that play a role in the process of operation including: workers, machines, materials and time. Operations are classified into each different industries including: manufacturing, services, mining and agriculture. Industry classification for each products and services that the company produce will be discussed one by one.

Type of work processes in chromplate is Jobshop, a type in which each incoming product to be serviced can use the different workflow. Human resources (workers) being used must be able to work with different machinery. There are two work processes that occur in the chromtack. One for the customized product and other for mass-production product in the custom products apply processes in the form of project work, the work process for custom products is a series of discrete steps that are designed to produce something unique and huge. On the mass-production product used line flow work processes, for work process of the mass-pro products involved workers is a specialist who has the task of each one specifically, repeatedly perform a simple task. Chromtrail operations an attachment maker services on the consumer truck in accordance with the needs of their field. Worked process in each project resulting unique product and held on a continuum of different work. Chromlite manufacturing operations is a project work process.

### 2) *Distinctive Capabilities*

Core competency is a set of competencies that occur across divisions, where all parts of the company have same competencies and is something that can be well done by the company. Distinctive competencies are an excellence core competency in the industry competition<sup>7</sup>. At first, the company stands as a pioneer of this industry in Indonesia, and it possessed technical expertise and production capabilities as its distinctive competencies. Along with the increase of new competitors, the original production capabilities distinctive competencies has become less unique, so it is need to be a minimum requirement to compete. However, the production capability still remains a core competency.

Capability of the company in the operations function is divided into a relationship with a supplier, the production of products and services, the distribution to the buyer, and risk management. Relationships with suppliers include material quality assurance, partner and managing third-party allotment. In the production process, accuracy of raw material supply is a form of keeping the added value given to the buyer. Production line does not always have to be done within the company, there is a process that can be implemented with the cooperation of third parties. This process is not associated with strategic activities but aimed to increase buyer satisfaction. Distribution to the buyer is one of the important factors in meeting buyer demand. Delivery time that appropriate with the delivery schedule give certainty to the buyer in running their business. Not only reliable in distribution but also maintain consistency of quality. Manage industrial process helped by risk considerations that may arise. The company minimize costs due to risks that can occur by setting of work process, production process that meet the work process and provide a standardized products as indicators in managing risk in operations management.

### 3) *Target Market Segment, Customers, and Particular Customer Requirements*

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<sup>7</sup> Wheelen, Thomas.L. & Hunger, J.David, 2010, *Strategic Management And Business Policy: Achieving Sustainability* (12<sup>th</sup> Ed.) New Jersey: Pearson.

Customers of the company are the owner and/or user of the heavy equipment. The majority are engaged in coal mining. All products have contributed and have an important role for the growth and future of ABC. Market position entered by the company are the heavy equipment user, the OEM's and contractors. Market segmentation is the user of heavy equipment for mining. The Company is a pioneer in this industry, the trade mark has been known for a long time and is used as the name of the product. The company's reputation as a provider of services and quality products have been recognized by the world-class heavy equipment company with OEM certification. This helps marketing and sales to meet market needs for high-quality goods and services.

#### *I. Analysis of business solution*

Finding ways to fulfill the customer's needs is a part of strategic factor. In providing goods and services, operation strategy offers added value in the form of quality, cost, delivery time and flexibility.

##### *1) Alternatives Strategies To Achieve Broader Aims While Achieving Strategic Fit*

Environment factors can not entirely be accommodated in the strategy, so that the matrix SFAS focused on getting the influential factors as the key of success factors in corporate strategy. The competencies of the company plays an important role as key of success factors, it would be an advantage in competition. Strategy formulation starting from capability, alternative, and its measures. Formed strategy first synchronized with current conditions to see the effectiveness of its implementation. Result of SFAS table is strategic factor, which includes only the most important factors derived from observations of the environment and to provide information that is essential in the formulation of strategy. The critical strategic factors are business planning as a weakness, development of production process as opportunities and decreasing demand for coal as threat.

Competencies, which became the basic capital advantage and differentiator in a competition. Competencies should be strengthened to be a force. Ability to carry out operations management requires performance measurement. Measurement in meeting customer needs include productivity, efficiency, effectiveness, and health and safe workplace. These measurements support the ongoing operations management. This measurements have enhanced manageability and the ability to grow. This ability can enhance company's internal improvement and development, so that the company value will be increased.

##### *2) Developing Operation Strategy*

Ability to carry out operations management requires performance measurement. Measurement in meeting customer needs include productivity, efficiency, effectiveness, and health and safety workplace. These measurements support the ongoing operations management. Finding ways to fulfill the customer's needs is a part of strategic factor in improving the competitiveness of company. In providing goods and services, operation strategy offers added value in the form of quality, cost, delivery time and flexibility. Operation strategy is chosen appropriate with the market requirement to provide a competitive edge for the company. Operation strategy as distinctive competencies is implemented by the company better than any competitors.



Figure 4. Developing Operation Strategy<sup>8</sup>

To meet the company's market, operation strategies focused on quality and delivery time. For flexibility of products and services, the company has chosen to become the supplier of heavy equipment. Meanwhile, cost strategy factor is an attempt to optimize an efficient work.

#### a) Quality

Quality is the specification of goods and services that meet or exceed the expectations of buyers. Quality relates to two categories: quality of product and process quality. The purpose of creating an expected level of quality product that is meeting the needs of the buyer. Quality process aims to create flawless products. Generate high quality goods and services stems from the design, production until the last inspection. Company has been using ISO series as an effort for develop and give consistent guides to production process in order to avoid or at least directs to the possibility of production defect before the process begin.

In the production process examination conducted to determine the quality of the production. An audit of the quality of the production process is done through statistical methods, until the end of the production process is completely done. The process in maintaining the quality began from the materials that meet to the specifications. Supplier of raw materials to the company are qualified to these specifications. Production errors that are found on the end result of production resulting a greater cost. Mistakes can be entered in the condition that can be repaired, reworked or scrap. Running the operation strategy in the competitive priorities of quality products and quality process requires information about the condition of every phase of production. This can be met by having measurable performance recording. Recording of performance measurements conduct based on the type of work process.

#### b) Delivery

Speed in providing goods and services is an important factor in sales. The company's ability to provide consistent products and fast delivery time is a must. Products must be received by the customer with good reliability levels of delivery time. The company uses forwarding services or third parties in delivering the product to the customer. In these circumstances an operation strategy associated with performed production process time (lead time). Lead time in the company production process is based on two: machines and workers.

#### c) Cost

The factor of performing any operation cost process with an attempt to optimize the available resources. There are two kind of costs involved they are direct costs and indirect costs. On the direct cost consist of raw materials, labor, machinery and energy. Direct costs can be directly connected with the products, while the indirect costs to be allocated by divided to each produced product.

#### d) Aggregate Planning

<sup>8</sup> Wheelen, Thomas.L. & Hunger, J.David, 2010, *Strategic Management And Business Policy: Achieving Sustainability* (12<sup>th</sup> Ed.) New Jersey: Pearson.



Figure 5. Aggregate Planning

Aggregate planning is the activity to plan aggregate (combined) production for a period of 3 to 12 months. With Aggregate Planning, companies can determine the amount and when the material to be provided, the capacity of the machine and manpower needed and estimate the time when the overtime and subcontract labor and machine capacity can not meet the needs of production. The goal is to develop an efficient production plan in one year budget. Aggregate planning attempts to match the company's ability (capacity machines, labor, work time) with the need (demand) to produce goods or services for the coming year. The term "aggregate" (ie combined) intended to imply that the entire output of the company in one year is represented by a "product". Aggregate "product" can be expressed with a unit of product or manhours or machine hours.

Required in aggregate planning are: resources, demand forecast, and cost. The aggregate planning strategies that might be the best solution is a combination of capacity option. The combination consist of vary workforce levels or vary production rate and stable production that leads to better quality and productivity.

### 3) Evaluation And Choice

Shows how the external factors can be addressed through internal factors as a strategic factor in generating alternative strategies. Strategic factor in improving the competitiveness of companies in the competition. It can be concluded that the factors that should be the primary concern is to increase their competence to be superior in competition. In this industry it is important to have the advantage of delivering a good quality product consistently and quickly delivered to the buyer. Management of production activities become the factors that must be prepared. It will makes the company product more desirable. Two functions in a company that provides ultimate value and have high bargaining power to the buyer are in operation and marketing function. Operation and marketing functions have their roles in meeting the required value buyers.

Marketing functions in the company include product, place, price and promotion (4Ps). Product becomes an important element which customer need products and services that are reliable and guaranteed delivery times. While for place, price and promotion company has been well-positioned. Marketing functions that make the company into a position of choice from buyers. Operation function as the core of the production process of goods and services is a crucial role in the course of the company. Company capabilities in operations management that makes products and services different from rival companies. An increase in the company's operating management will make the company have a buyer.

### 4) Operation measurement

Measurement is fundamental to know the capabilities. Measurements proposed to be done at the level of production. The Company has four products with different work process. The measurable of the production process provides opportunities for companies to have a basis for making improvements and long-term strategy. In operations management, there are two measurements which are effectiveness and efficiency. Effectiveness is a measure to determine the ability to achieve the output target, the result is delivering good quality value and time delivery to the customer. Efficient is doing process with the lowest possible cost. Efficiency efforts made by the company are in the use of available internal resources such as labor, machinery, materials and time. Efficiency can be realized with an economical use of resources and method.



Productivity affects the ability of the company to meet the demand. Productivity of the company's production is affected by the productivity of labor and machine productivity. Productivity empirically formulated as:

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*a) Labor based productivity*

Productivity based on worker have determinants such as:

- Skills.  
Skills acquired and developed by education, training and experience.
- Facilities and infrastructure  
Infrastructure and facilities including equipment, technology applied and work climate.
- Motivation  
Motivation of works developed through salaries and benefits system, it helps to create a personal encouragement.

*b) Capacity*

The throughput, or the number of units a facility can hold, receive, store, or produce in a period of time. Capacity determines fixed costs, determines if demand will be satisfied, and three time horizons (short range planning, intermediate range planning and long range planning). Capacity considered as design and effective capacity. Design capacity is the maximum theoretical output of a system. Effective capacity is the capacity a firm expects to achieve given current operating constraints. The measurement of capacity contains two aspect, which are utilization and efficiency. Utilization is the percent of design capacity achieved. Efficiency is the percent of effective capacity achieved. The capacity of labor can be seen in two standard capacity, based on the method standard and time standard.

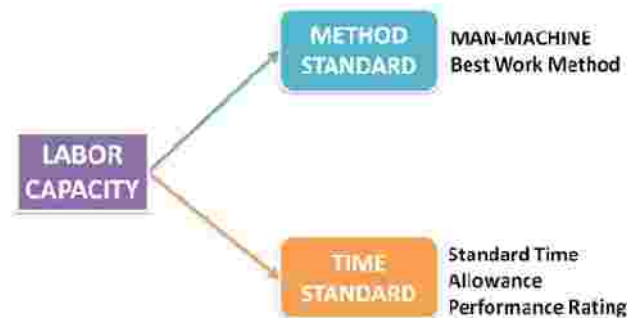


Figure 6. Labor capacity

The performance recording of labor based on standard methods can be influenced by the machine used and the methods labor are applied. In condition the equipment and work methods used greatly influence the length of time to complete a product, performance calculations made with material availability policy, the accuracy of the equipment and the speed and precision in utilizing these equipment. To work methods can be evaluated by looking at the possibility of improvement methods to improve the ability of employee.

The performance recording of labor based on time standard can be done with a simulation where every labor work based on nature of their occupation then made statistical time required by senior labor from each group to complete a product or the work piece. Time obtained from statistical will become the benchmark for the time standard of the working group members. Each labor will have their performance levels depending on their work experience.

*c) Machine based productivity*

On productivity based on the machine, the machine played the primary role in the process of production. Factors affecting productivity are the machinery capacity, operator expertise, support maintenance, material planning, quality of materials used, and the working procedure. Productivity calculations used statistical length of time to complete a product or part of the work in accordance

<sup>9</sup> Heizer, Jay. & Barry Render, 2009, *Operation Management* (9<sup>th</sup> Ed.), USA: Pearson Education International.

with the function of the machine. Thus the company will know the capacity and productivity of the plant. The ability to recognize this capacity will be a fundamental consideration of the company in making a development strategy decision to achieve long-term targets.

#### 4. Implementation Plan

An implementation plan made in order to give real impact for the company. The implementation plan described below:

##### *J. Scope Of Change*

Scope of change that happened from the proposal of operations strategy formulation include: knowing the classification of industry operations for each type of product, understanding the type of work process for each type of product, understanding the parameters of the operation strategy that become corporate priority, and having a standard method of measuring capacity and productivity. Changes will occur on the basic performance records, knowledge of the exact production capacity, also in opportunities to make working methods improvement, and an appropriate investment. By knowing the production capacity accurately, the coordination of each division in achieving target will be synergic. Holistic measurement of corporate performance can be started by this basic measurement.

List of activities: identification of work activities, identification of materials and resources involvement, determination of the method of measurement, ownership of performance measurement capacity, measurement of the operating performance capacity of each activity. The event held for each work activity on each type of company product. Each line manager is expected to be the person in charge for the performance measurement activities at each production lines. The event should be carried out during the routine production activities, so the allocation budget of these activities can be minimized. Time standard propose to be conduct as a time study, with stages of: Specify the work to be standardized, for-divide the job into elements work uniform, select the skilled workers to do the job (skilled workers selected so as not to make a mistake), all equipment and materials supplied in sufficient so that work is not disrupted, start time measurement, each element of the work was observed and recorded the time, observe the speed of work (to determine performance ratings), and repeat as require

Chromplate. There are two work activities, which are: the process of cleaning and plating. The process of cleaning and plating have the same input, which further input processes is the output from the previous process. The process of cleaning and plating prioritize the use of the machines, so that machine based used as the measurement method. Chromtach. There are three job activity in chromtach: cutting process, welding process, and painting process. Those processes are a sequence which the input for the next process is the output of the previous process. Machine-based measurement methods used for the cutting process. The process of welding and painting use the same labor based measurement method, which is method standard and time standard implemented simultaneously. Chromtrail. The work process that undertaken in chromtrail project make the inputs become various. Chromtrail is using labor based with method standard and time standard as a measurement method. Products that manufactured in chromtrail are custom, so recording trackrecord of the design and method of work are very important for the development of the next production project.

#### K. Transformation Step



Figure 7. Transformation Step

**Short range.** In the short term can be known the certainty of the production capacity and productivity. Besides that, the company should make improvement in the production methods and should train employees in order to improve and maintain their competencies. Training also an effort to support the optimization of the production line target achievement.

**Medium range.** The company should develops its performance management system become more synergic and refers to the financial parameters and non-financial parameters. The company should also develop other operation strategy.

**Long range.** Investation in the manufacturing industry as a national manufacturer of heavy equipment.

#### L. Critical Success Factor

Critical success factors in the implementation of the company operations performance measurement are: commitment from the leader and management to make better changes, the process of measuring the operation production performance, recording in the implementation process, involved resources such as labor (capability skill, enginuity, adaptability), equipment (precision, defect free), and material (high quality, purity, exact specification).

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